IN THE CLAIMS

1. (Previously Presented) A method of fabricating an interconnect structure, comprising:

(a) providing a substrate having a film stack formed thereon;

(b) patterning and etching a first feature in the film stack, wherein the first feature is a trench etched in the film stack to a pre-determined depth;

(c) forming a bi-layer mask comprising an organic film and an imaging film on the film stack;

(d) patterning the bi-layer mask;

(e) etching a second feature in the film stack using the patterned bi-layer mask as an etch mask, wherein the second feature is a contact hole, and wherein a portion of the organic film in the trench is used as an etch mask so as to remove lithographic misalignment between the contact hole and the trench when the contact hole is etched; and

(f) metallizing the first and second features to form the interconnect structure.

2. (Original) The method of claim 1 wherein the film stack comprises a first barrier layer, a conductive layer embedded in a first dielectric layer, a second barrier layer and a second dielectric layer.

3. (Original) The method of claim 2 wherein at least one of a capping layer and a sacrificial layer is formed on the second dielectric layer.

4. (Original) The method of claim 3 wherein the sacrificial layer comprises at least one of amorphous silicon, titanium nitride (TiN) and tungsten (W).

5. (Original) The method of claim 2 wherein the first dielectric layer and the second dielectric layer each comprise at least one of carbon doped silicon oxide, organic doped silicon glass and fluorine doped silicon glass.

6. (Original) The method of claim 2 wherein the first barrier layer comprises at least one of silicon dioxide (SiO_2) and silicon nitride (Si_3N_4).

7. (Original) The method of claim 2 wherein the second barrier layer comprises silicon carbide (SiC).

8. (Original) The method of claim 2 wherein the conductive layer comprises at least one of copper (Cu), aluminum (Al), tantalum (Ta), tungsten (W), titanium (Ti), tantalum nitride (TaN) and titanium nitride (TiN).

9. (Previously Presented) The method of claim 29 wherein the first feature is a trench and the second feature is a contact hole.

10. (Previously Presented) The method of claim 29 wherein the first feature is a contact hole and the second feature is a trench.

11-13. (Cancelled)

14. (Previously Presented) The method of claim 1 wherein step (b) comprises:

etching the trench in the film stack comprising a dielectric material to a pre-determined depth by providing carbon tetrafluoride (CF_4) and nitrogen (N_2) at a CF_4:N_2 flow ratio in a range from 1:4 to 2:3.

15. (Currently Amended) The method of claim 1 wherein step (e) comprises:

etching the contact hole in the organic layer to a pre-determined depth by providing ammonia (NH_3) and oxygen (O_2) at a flow ratio <u>of</u> NH_3:O_2 in a range from 1:1 to 100 percent ammonia.

16. (Previously Presented) The method of claim 3 wherein both a capping layer and a sacrificial layer are formed on the second dielectric layer and further comprising a step of planarizing the metallized interconnect structure to remove the sacrificial layer and at least a portion of the capping layer.

17-19. (Cancelled)

20. (Previously Presented) The method of claim 29 wherein step (b) comprises:

etching the contact hole in the film stack comprising a dielectric material to a pre-determined depth by providing carbon tetrafluoride (CF_4) and nitrogen (N_2) at a CF_4:N_2 flow ratio in a range from 1:4 to 2:3.

21. (Currently Amended) The method of claim 29 wherein step (e) comprises:

etching the trench in the organic layer to a pre-determined depth by providing ammonia (NH_3) and oxygen (O_2) at a flow ratio <u>of</u> NH_3:O_2 in a range from 1:1 to 100 percent ammonia.

22. (Cancelled)

23. (Previously Presented) The method of claim 30, wherein the trench is etched to a pre-determined depth in the film stack.

24-25. (Cancelled)

26. (Previously Presented) The method of claim 30, wherein the contact hole is etched to a pre-determined depth in the film stack.

27-28. (Cancelled)

29. (Previously Presented) A method of fabricating an interconnect structure, comprising:

(a) providing a substrate having a film stack formed thereon;

(b) patterning and etching a first feature in the film stack, wherein the first feature is a contact hole etched in the film stack to a pre-determined depth;

(c) forming a bi-layer mask comprising an organic film and an imaging film on the film stack;

(d) patterning the bi-layer mask;

(e) etching a second feature in the film stack using the patterned bi-layer mask as an etch mask, wherein the second feature is a trench, wherein a portion of the organic material in the contact hole is used as an etch mask when the trench is formed in the film stack; and

(f) metallizing the first and second features to form the interconnect structure.

30. (Previously Presented) A method of fabricating an interconnect structure, comprising:

(a) providing a substrate having a film stack formed thereon;

(b) patterning and etching a first feature in the film stack;

(c) forming a bi-layer mask comprising an organic film and an imaging film on the film stack;

(d) patterning the bi-layer mask;

(e) etching a second feature in the film stack using the patterned bi-layer mask as an etch mask, wherein a portion of the organic film in the first feature is used as an etch mask so as to remove lithographic misalignment between the second feature and the first feature when the second feature is etched; and

(f) metallizing the first and second features to form the interconnect structure.

31. (Previously Presented) The method of claim 30, wherein the first feature is a trench and the second feature is a contact hole.

32. (Previously Presented) The method of claim 30, wherein the first feature is a contact hole and the second feature is a trench.